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09/591,216	06/09/2000	Giora Biran	6727/OH271	2935

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Darby & Darby PC
805 Third Avenue
New York, NY 10022

EXAMINER

NEURAUTER, GEORGE C

ART UNIT	PAPER NUMBER
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2143

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/591,216

Applicant(s)

BIRAN ET AL.

Examiner

George C Neurauter, Jr.

Art Unit

2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 11, 13-14, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. The term "substantially independent" in claims 11, 13, and 24 is a relative term which renders the claim indefinite. The term "substantially independent" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear what threshold is required for the logic circuitry size to be independent of the number of clients served by the arbiter.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Moyal [US Patent 6 445 680 B1].

Regarding claim 1, Moyal discloses an arbiter which arbitrates between a plurality of clients generating requests for access to a resource in a computing environment, comprising: a memory, comprising for each of the plurality of clients: a request register, which is adapted to record the respective client's access requests; and a next-client pointer, which is adapted to record an identification of another one of the clients making a subsequent request to access the resource, so as to form a linked list of the requests; and logic circuitry which is adapted to decide, responsive to the linked list, which of the plurality of clients is given access to the resource. [column 2, line 10-column 3, line 41; column 4, line 6-column 5, line 39]

Claim 15 is rejected since claim 15 recites a method with substantially the same limitations as recited in claim 1.

Regarding claim 2, Moyal discloses an arbiter according to claim 1, wherein the memory comprises at least one list-terminating pointer which indicates an end of the linked list. [column 4, line 6-column 5, line 39, specifically column 4, line 57-column 5, line 6 and column 5, lines 12-39; column 6, lines 38-57]

Claim 16 is rejected since claim 16 recites a method with substantially the same limitations as recited in claim 2.

Regarding claim 3, Moyal discloses an arbiter according to claim 2, wherein the at least one list-terminating pointer comprises a tail pointer which indicates a last client in the linked list. [column 4, line 6-column 5, line 39, specifically column 4, line 57-column 5, line 6 and column 5, lines 12-39; column 6, lines 38-57]

Claim 17 is rejected since claim 17 recites a method with substantially the same limitations as recited in claim 3.

Regarding claim 4, Moyal discloses an arbiter according to claim 2, wherein the at least one list-terminating pointer comprises a head pointer which indicates a first client in the linked list, and wherein the logic circuitry is operative to decide, responsive to the head pointer, which of the plurality of clients is given access to the resource. [column 4, line 6-column 5, line 39, specifically column 4, lines 6-12, column 4, line 57-column 5, line 6 and column 5, lines 12-39; column 6, lines 38-57]

Claim 18 is rejected since claim 18 recites a method with substantially the same limitations as recited in claim 4.

Regarding claim 5, Moyal discloses an arbiter according to claim 1, wherein the logic circuitry is operative to check whether a client requesting access to the resource has a pending access request, and to update a record of the number of pending access requests recorded in the respective register responsive to the check. [column 4, line 6-column 5, line 39, specifically column 4, lines 27-56 and column 5, lines 20-39]

Claim 19 is rejected since claim 19 recites a method with substantially the same limitations as recited in claim 5.

Regarding claim 6, Moyal discloses an arbiter according to claim 1, wherein the logic circuitry is operative to check whether the resource is available, and to allocate the resource responsive to the check. [column 4, line 6-column 5, line 39, specifically column 5, lines 7-11 and 20-38]

Claim 20 is rejected since claim 20 recites a method with substantially the same limitations as recited in claim 6.

Regarding claim 7, Moyal discloses an arbiter according to claim 1, and comprising at least one buffer wherein requests from a specific client are stored before being recorded in the respective request register. [column 4, line 6-column 5, line 39, specifically column 4, line 34-column 5, line 39]

Claim 21 is rejected since claim 21 recites a method with substantially the same limitations as recited in claim 7.

Regarding claim 8, Moyal discloses an arbiter according to claim 1, and comprising a first-in first-out memory wherein requests from the plurality of clients are stored before being transferred sequentially to the memory and the logic circuitry. [column 4, line 6-column 5, line 39, specifically column 4, line 34-column 5, line 39]

Regarding claim 9, Moyal discloses an arbiter according to claim 1, wherein the memory comprises: for at least some of the clients, a priority flag which is adapted to record a priority for access to the resource for the at least some clients; and at least one list-terminating pointer for the priority, which indicates an end of the linked list for the at least some clients. [column 4, line 6-column 5, line 39, specifically column 4, lines 6-12 and column 5, lines 7-11; column 7, line 43-column 8, line 32, specifically column 7, lines 50-52]

Claim 22 is rejected since claim 22 recites a method with substantially the same limitations as recited in claim 9.

Regarding claim 10, Moyal discloses an arbiter according to claim 9, wherein the logic circuitry is adapted to decide, responsive to the linked list and the priority flag, which of the clients is given access to the resource. [column 4, line 6-column 5, line 39, specifically column 4, lines 6-12 and column 5, lines 7-11; column 7, line 43-column 8, line 32, specifically column 7, lines 50-52 and column 7, line 61-column 8, line 3]

Claim 23 is rejected since claim 23 recites a method with substantially the same limitations as recited in claim 10.

Regarding claim 11, Moyal discloses an arbiter according to claim 1, wherein the logic circuitry is of a size that is substantially independent of the number of clients served by the arbiter, and wherein the circuitry is adapted to decide, responsive to the recorded requests, which of the plurality of clients is given access to the resource. [column 3, line 42-column 4, line 3; column 4, line 6-column 5, line 39, specifically column 4, lines 6-12 and 23-51]

Claims 13 and 24 are rejected since claims 13 and 24 recite an arbiter and method with substantially the same limitations as recited in claims 1 and 11 in combination.

Regarding claim 12, Moyal discloses an arbiter according to claim 1, wherein a size of the memory scales as a product of the number of clients and a logarithm of the number of clients. [column 3, line 42-column 4, line 3; column 4, lines 6-51]

Claim 14 is rejected since claim 14 recites an arbiter with substantially the same limitations as recited in claim 12.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6 240 006 B1 to Nagarajan et al;

US Patent 5 893 162 A to Lau et al;

Li, Jie et al. "Load Balancing Problems for Multiclass Jobs in Distributed/Parallel Computer Systems". IEEE Transactions on Computers, Vol. 47, No. 3, March 1998, pages 322-332;


Li, Jie et al. "A Decomposition Algorithm for Optimal Static Load Balancing in Tree Hierarchy Network Configurations". IEEE Transactions on Parallel and Distributed Systems, Vol. 5, No. 5, May 1994, pages 540-548.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George C Neurauter, Jr. whose telephone number is 703-305-4565. The examiner can normally be reached on Mon-Fri 9am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 703-308-5221. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-746-7240.

gcn



DAVID WILEY
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